

5 RIB PANEL

Installation Manual

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ABOUT THIS MANUAL

- We suggest you read over the entire manual for familiarization before starting out. You may also wish to crosscheck various sections of the manual as you read.
- Installing 5 Rib Panel can be fairly simple if you follow the instructions in this manual. Each section of this installation manual is designed to guide you through every step of the job with practical advice based on years of industry practice and experience. However this manual is designed to help the qualified installer and DIY enthusiast.
- The techniques discussed in this manual are illustrative of the procedures covered. They are not intended to be fully exhaustive and definitive. Other methods and techniques are used by qualified installers with full success.
- The best method depends on the specific construction of the building worked on, the brand and type of siding used, and the particular skills of the applicator.
- Although the manual is based on the best information and experience currently available in the industry, TMS Products does not make any representation or warranty, express or implied (whether of merchantability or of fitness for a particular use or purpose) with respect to any tools, material, techniques, or procedures referred to herein.
- Always remember to use licensed contractors who understand local building codes as these codes may vary from one region to another.

IMPORTANT NOTICE

- This manual is to aid the installer with the installation of the 5-Rib Panel. Due to the different complexities of roofs and roofing situations, it is difficult to create a manual that covers every situation that the installer may encounter.
- This manual is to serve as a guideline to properly install the 5-Rib Panel.
- Check the local building codes prior to installing metal roofing.
- Any questions you may have regarding the proper installation of the 5-Rib Panel should be directed to The Metal Shop LLC.

TOOLS RECOMMENDED

- Variable Speed Drill or Screw Gun, Snips, Magnetic Bits, Extension Ladder, Turbo Shears (we stock these for purchase), Tape Measure, Hand Tools, Chalk Line, String Line, Drill Bits, Tool Belt, and Utility Knife

SAFETY

- Failure to observe proper roofing safety can result in serious injury or death. Extreme caution should be used at all times when installing metal roofing. This information in this manual is to show the correct placement of the metal roofing parts. It is the responsibility of the erector to perform the placement of these parts in a safe manner. Refer to OSHA guidelines for applicable safety requirements.
- Never walk on a wet metal roof.
- Never walk on an unfastened roof panel.

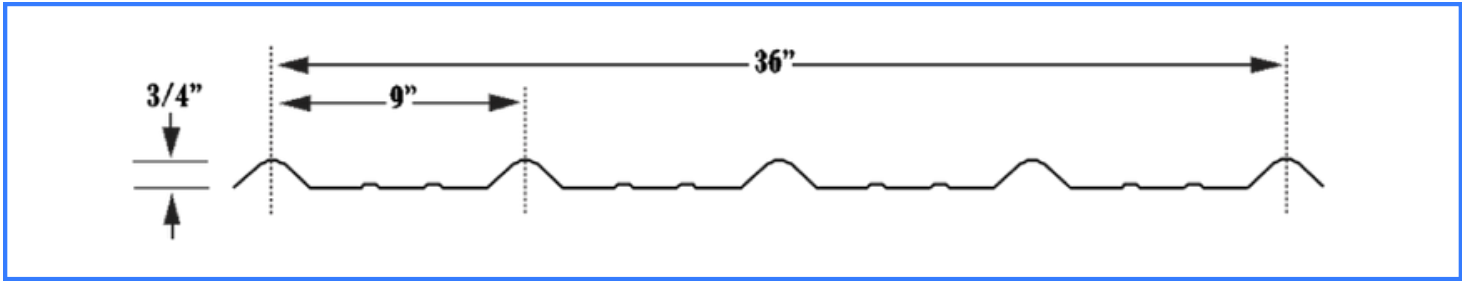
IMPORTANT NOTICE

STORAGE/HANDLING

- ❖ Important: Moisture trapped between stacked sheets may cause water stains or white rust to form under the paint, which can affect the life and service of the metal.
- ❖ If metal is not used immediately, store in a well-ventilated dry location.
- ❖ Any outdoor storage is at the customer's own risk! if outdoor storage cannot be avoided the likelihood of damage may be reduced by protecting the metal using a canvas or waterproof paper.
- ❖ Fan sheets lightly at the bottom to allow for air circulation.
- ❖ Keep the sheets off the ground by using a wood riser to keep off ground.
- ❖ Never cover the metal with plastic as this will cause condensation to form.



5 RIB PANEL PRODUCT INFORMATION



Measurement:

- ◆ **Applications:** Residential, Light Commercial, Industrial, Agricultural
- ◆ **Gauge:** 28 gauge
- ◆ **Minimum Slope:** 2/12 with Lap Sealant Below 3/12
- ◆ **Panel Profile:** 36" net coverage, 5 ribs 9" on center, 3/4" high rib
- ◆ **Substrate:** Galvalume® steel
- ◆ **Finish:** Mill Finish AZ55 Acrylic Coated Galvalume®; 25 year limited warranty
- ◆ **TMS paint warranty:** 40 year limited warranty.

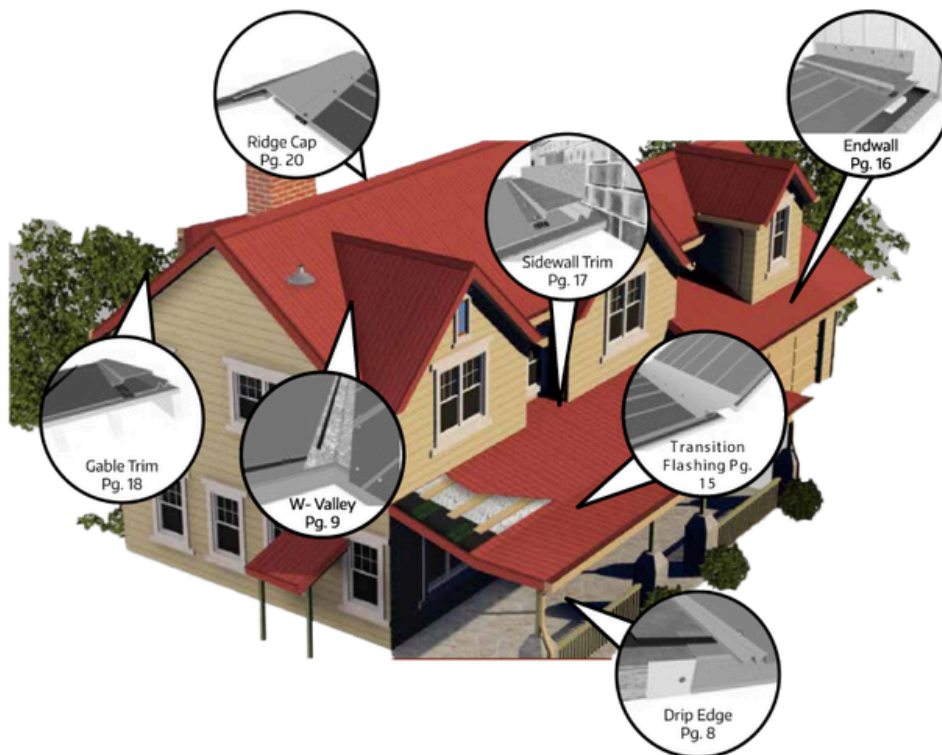
Measurement:

- ◆ A current list of Michigan Product Approvals is available on our website. For the most up-to-date Michigan Product Approvals, Please visit our website: www.themetalshopllc.com

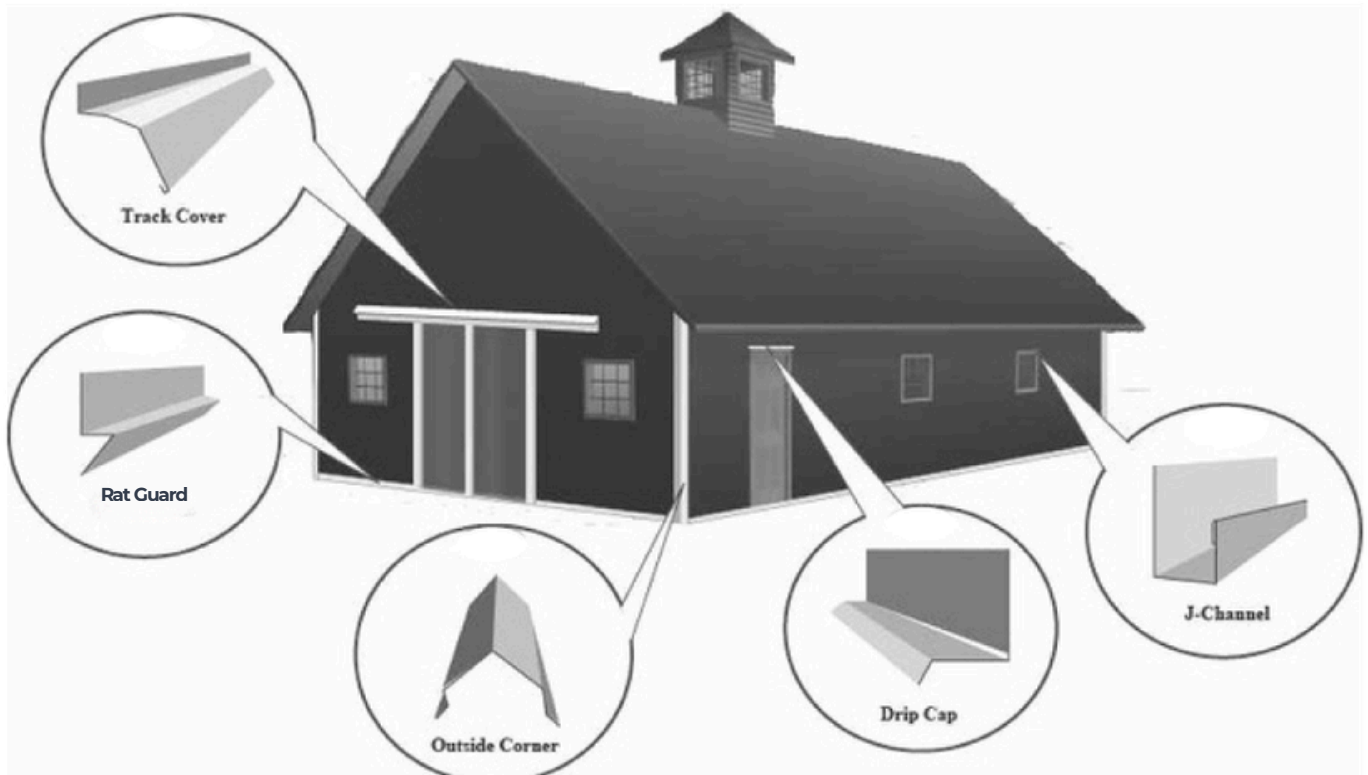
Recommended Accessories:

- ◆ TMS Mini Drill Metal Fasteners
- ◆ (250 screws/bag)

ROOFING ANATOMY



SIDING TRIM



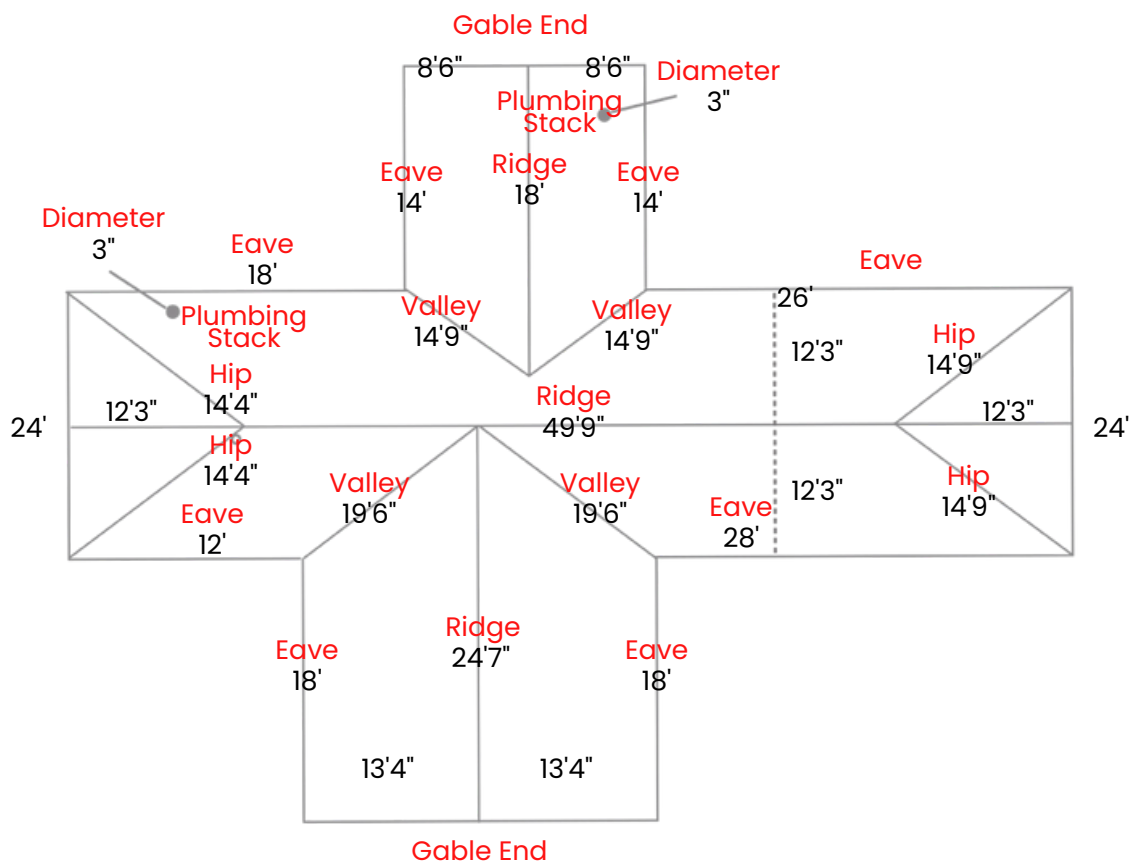
*Please refer to the drawing above when ordering siding.

MEASURE YOUR ROOF FOR AN ESTIMATE

Instructions:

- Start by sketching a birds-eye view of your roof. This can be aided by using Google Earth or similar online programs.
- Identify each part of your roof similar to the drawing below.
- Once you have drawn your roof and identified each part, measure each line and include it on the drawing.
- Include on the drawing the location of plumbing stacks (if any) and the diameter of the pipe.

Illustration:



ROOFING INSTALLATION

- ▶ The order that items appear in this manual corresponds to the order that they should be installed. Please read carefully and if you have any questions regarding what you read in this manual, please feel free to call us.
- ▶ **Important:** This manual should only serve as a guide to how the metal roofing should be installed. This installer must check with local building codes before any installation of the roof begins.

UNDERLAYMENT INSTALLATION

- ▶ Starting at the eave, run the underlayment horizontally at the eave. Fasten the underlayment every 6" at the edges and stagger one row of fasteners every 12" through the middle of the underlayment.
- ▶ Endlaps should be staggered every 6'.
- ▶ Overlap each row of underlayment 4".
- ▶ See Michigan Building codes for specific installation

WE RECOMMEND AND STOCK THESE UNDERLAYMENTS:

- ▶ Ultra HT-Temperature Underlayment and Synthetic Roof Underlayment

ROOFING INSTALLATION

FIELD CUTTING PANELS AND TRIM

- ◈ Trim pieces can be cut with a quality pair of snips.
- ◈ Metal panels can be cut using tin snips, or scoring the panel with a utility knife.
- ◈ DO NOT CUT with a metal cutting blade. This will cause hot particles from the skill saw shavings landing on the paint and damaging the finish. Voids the warranty and edges will rust.

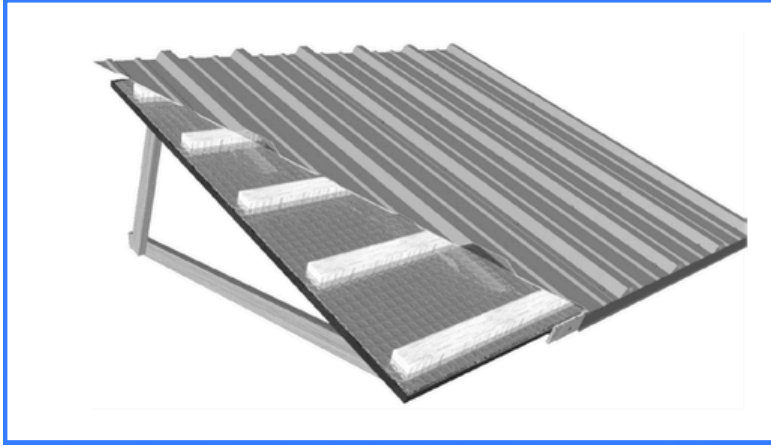
WE RECOMMEND AND STOCK THESE HAND TOOLS FOR CUTTING:

- ◈ Midwest Cutting Snips
- ◈ 6" Hand Seamer
- ◈ 3" Hand Seamer



SINGLE BUBBLE INSULATION

Illustration:



RECOMMENDED ACCESSORIES:

Single Bubble
(6' x 102' roll)

Note: SILVER SIDE UP

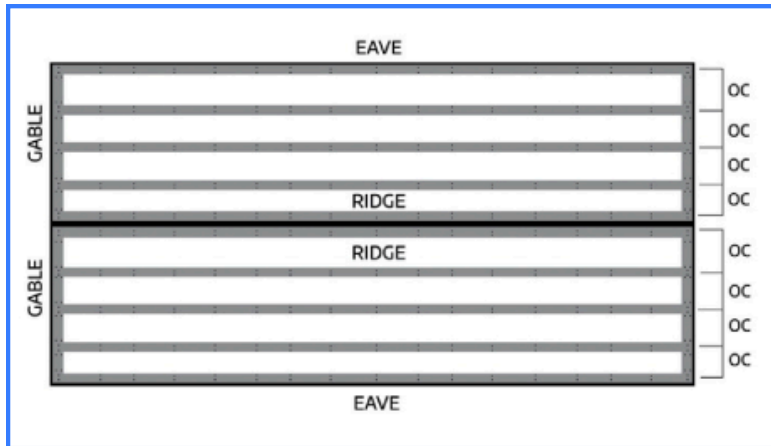
Instructions:

- Fasten Single Bubble Insulation to the roof using plastic caps every 12" on center on the edges and one row through the center every 12" on center (the purpose of fastening the Single Bubble Insulation is to hold the Single Bubble Insulation in place prior to installing purlins)
- Starting at the eave, run the Single Bubble Insulation up and over the ridge to the other side. If you are venting the ridge it is easier to cut the Single Bubble Insulation back along the entire ridge after you have installed the entire roof and 1 x 4' s (If applicable).
- Tape all seem edges with Single Bubble Insulation tape. (Optional)
- Once Single Bubble Insulation has been installed over the entire roof, then you are ready for purlins.
- A 3/4" air space is required with the use of Single Bubble Insulation for it to work effectively.

*Please read ahead in this book for purlin placement on trim details pages.

PURLIN SPACING

Illustration:



To see the most up-to-date Michigan Product Approvals for purlin spacing.

Instructions:

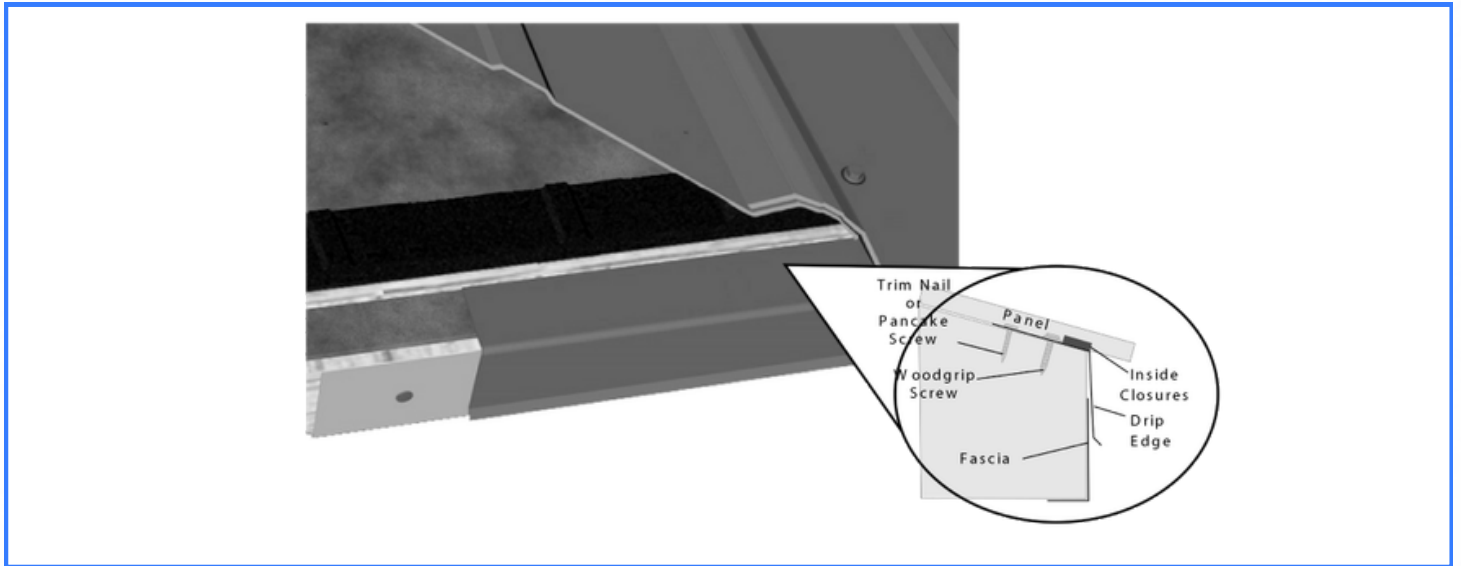
DO NOT USE PRESSURE TREATED PURLINS, PRESSUE TREATED PURLINS ARE CORROSIVE TO METAL ROOFING.

- The purpose of the purlins is to provide a solid foundation for the metal roofing panels and trim to be screwed to. Therefore, good judgment should be used in order for there to be a solid surface that can be screwed to.
- Purlin spacing is according to the most up-to-date Michigan Building Code. For more information, please visit our pros at www.themetalshopllc.com
- Purlins must be installed to support the entire width and length of the ridge, eave, hip, valley, transition, sidewall, endwall, and gable ends.
- You will also need to install purlins around penetrations such as plumbing pipes, electrical pipes, and skylights to fasten roof boots.

*Please read ahead in this book for purlin placement on trim details pages. One purlin = 1' x 4" x 12' #2 Yellow Pine

DRIP EDGE

Illustration:



Instructions:

- Attach Drip Edge flashing to the roof deck or purlins with 1 1/4" galvanized roofing nail 4' on center.
- Install optional inside closures on the top edge of the drip edge flashing.
- Overlap drip edge flashing a minimum of 3".
- Allow drip edge to run past the corner of roof 3" so it can be folded to ensure maximum weather tightness.
- Attach the roofing panel at the eave according to the most up to date Codes.

*Purlin placement should be directly above fascia board along the eave line.

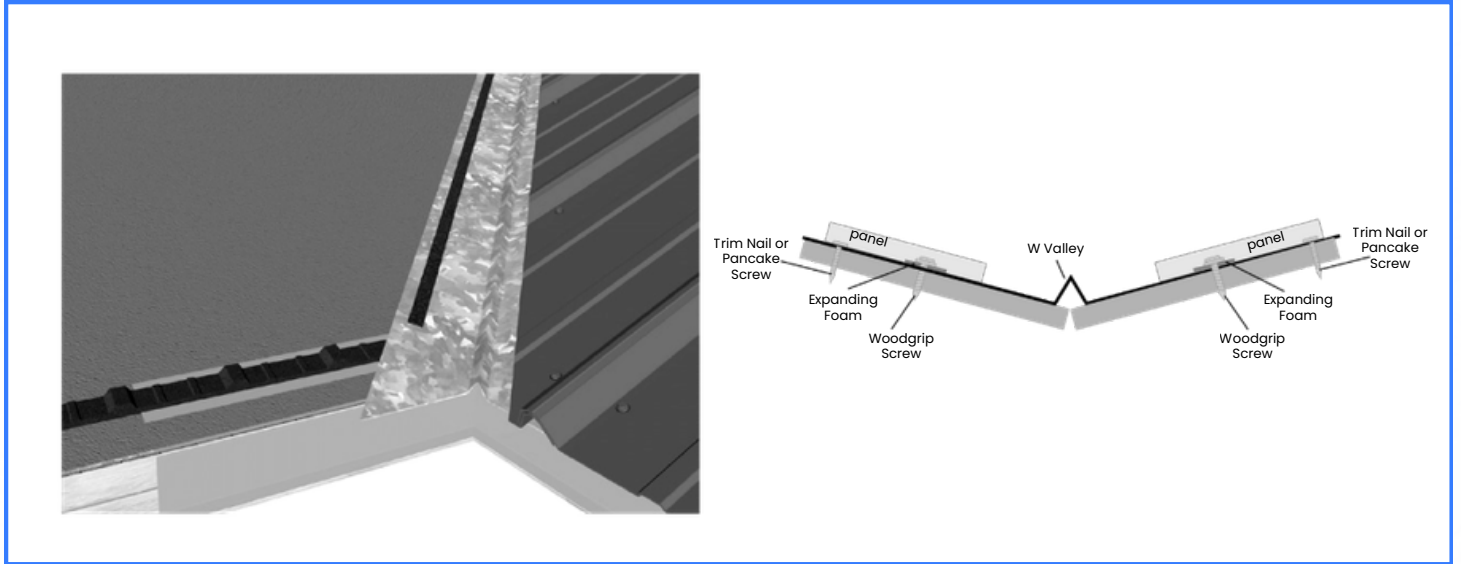
RECOMMENDED ACCESSORIES:

Inside Closures (1 Closure = 3' of coverage)

Trim Nails (1 box = 11b)

W VALLEY

Illustration:



Instructions:

- ▶ Starting at the bottom, fasten W-Valley trim flashing to purlins or substrate using 1 1/4" trim nails 1" from trim edge every 4" on center.
- ▶ The valley trim needs to run past the install drip edge, or cut flush with drip edge.
- ▶ End lap w-valley flashing a minim of 6 inches, and install 2" of Butyl minimum
- ▶ Apply expanding foam tape to the top of the W-Valley Flashing 1" from the bottom edge of the roofing panel.
- ▶ Fasten roofing panel ends according to most up to date Code.
- ▶ Screws should be installed according to most up to date Code.

*Purlins should be spaced 1" & 6" from center of valley on both sides.

RECOMMENDED ACCESSORIES:

Expanding Foam (1 roll = 20' of coverage)

FASTENING SCHEDULE

Instructions:

- Screw placement on both sides of ribs at Eaves, Ridges, Valley Ends, Hip Ends, Transition Ends.
- Purlin bearing rib side intermediate rows, 2-foot on Center.
- Lap screws must be installed as per the MI Product Approval chosen for the project.



Illustration:

Middle Screw Placement



Bottom and Top Edge Screw Placement



We recommend the use of #10 Mini Driller Screws for your metal roofing system.

FASTENING SCHEDULE – THRU RIB

Instructions:

- ▶ For proper screw placement, please refer to the Michigan Product Codes chosen for your project.
- ▶ Please contact for more information to our Pros at The Metal Shop.



Illustration:



PROPER SCREW INSTALLATION

Too Tight Washer deformed. Sealing material extrudes beyond edges of washer.	Too Loose Sealing material isn't visible. Not enough Compression.	Correct Sealing material is slightly visible at edge of washer. Assembly is weather tight.

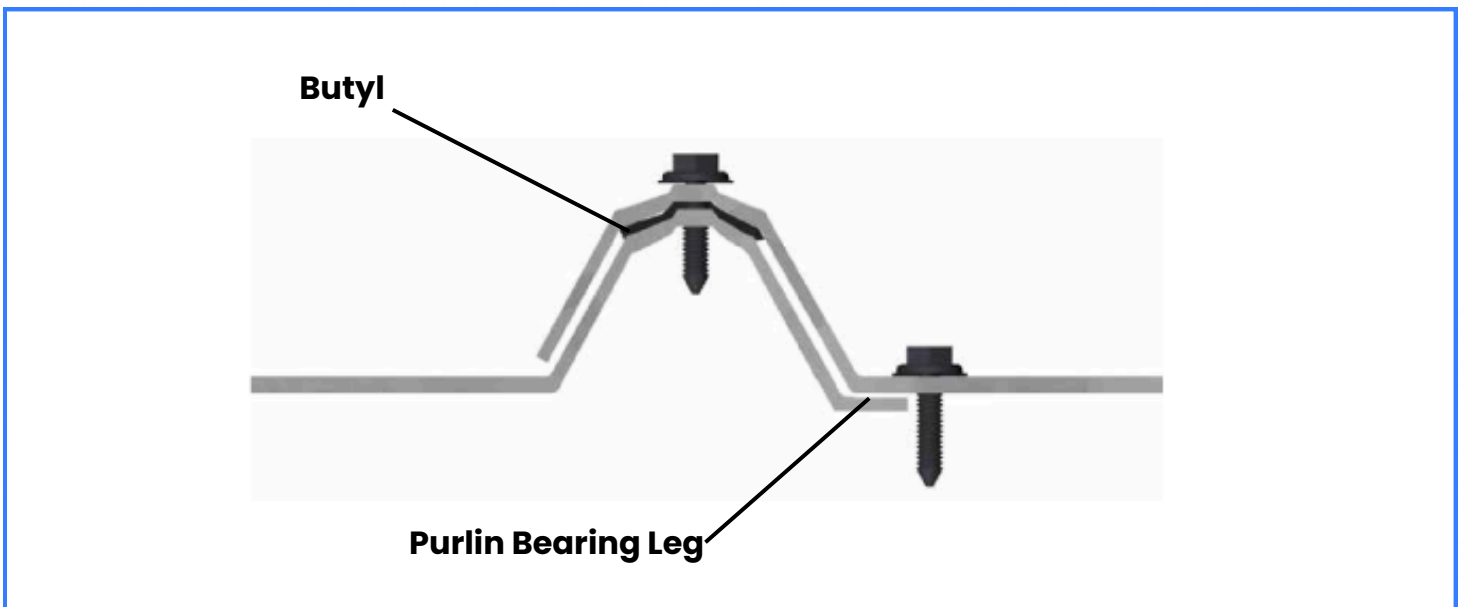
We recommend use of #10 Mini Driller Screws for your metal roofing system.

PRE-DRILLING PANELS

- ▶ The placement of screws and ease of installation can be aided by predrilling the roofing panels on the ground using a 3/16" drill bit.
- ▶ You will also benefit from predrilling the panels on the ground by not having metal shavings on the roof or unsightly shavings sticking out from under the screws that will rust.
- ▶ Predrilling holes for the screws will make the roof look better when viewed from the ground. Although screws can be installed on the roof, the tendency is to have wavy rows of screws.
- ▶ When predrilling panels, it is recommended to only predrill 10 panels of 28 gauge and 7 panels of 26 gauge at a time.

OVERLAPPING PANELS

Illustration:



Notice the purlin bearing leg is installed underneath the overlapping panel.

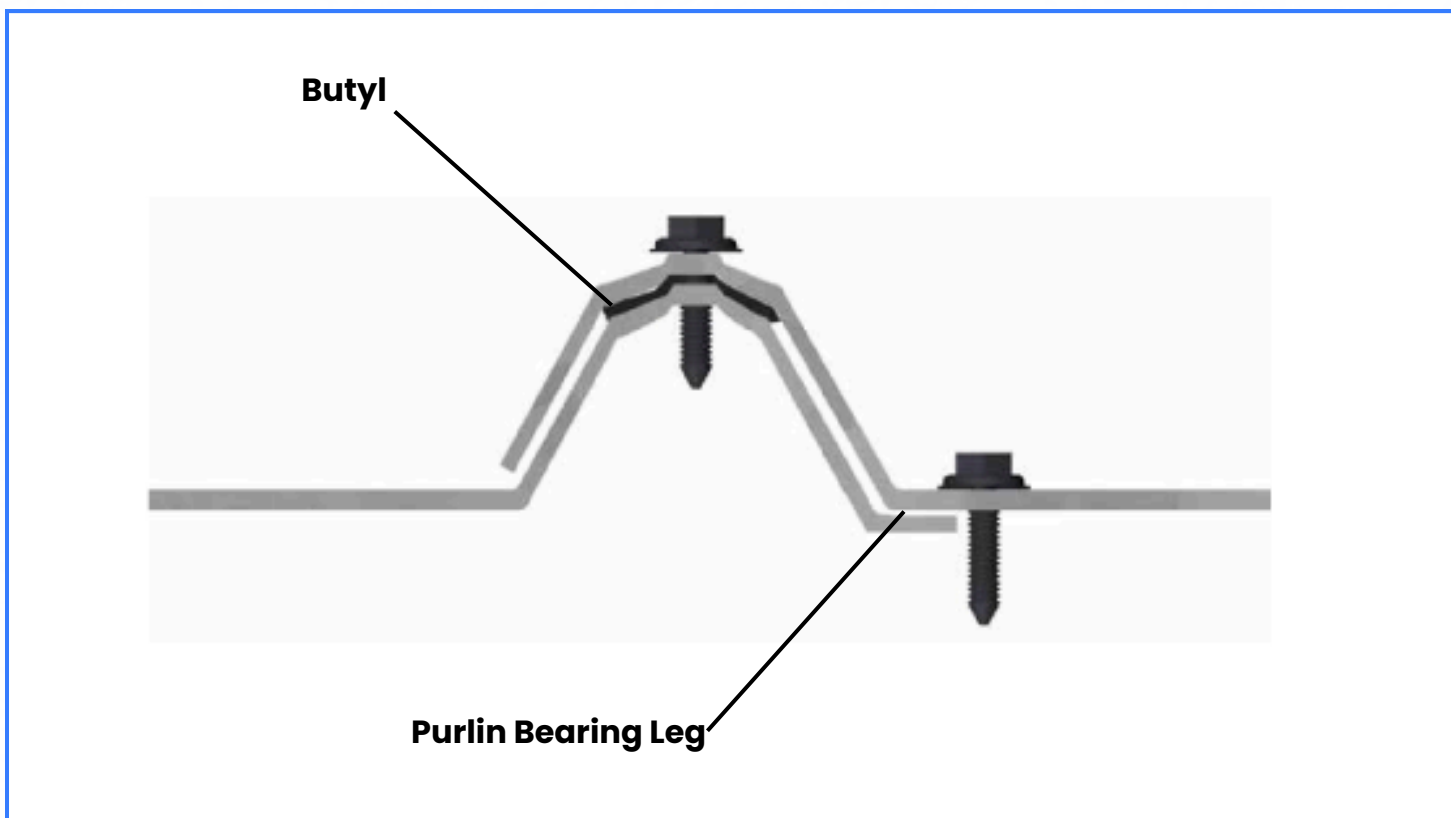
ATTENTION:

Roofs with less than a 3/12 pitch requires tacky tape to be installed the entire length of the panel overlap and the use of lap screws.

PREDRILLING PANELS – THRU RIB

OVERLAPPING PANELS

Illustration:



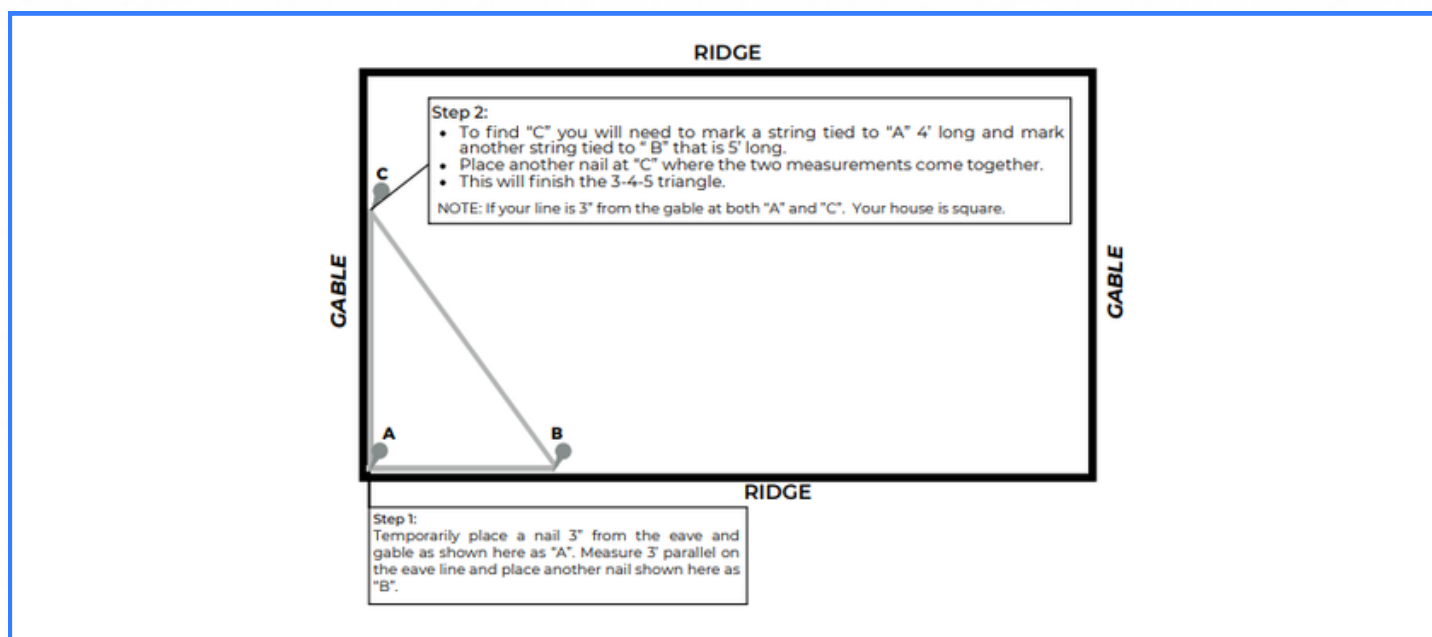
Notice the purlin bearing leg is installed underneath the overlapping panel.

ATTENTION:

Roofs with less than a 3/12 pitch requires tacky tape to be installed the entire length of the panel overlap and the use of lap screws.

SQUARING PANELS

Illustration:



Instructions:

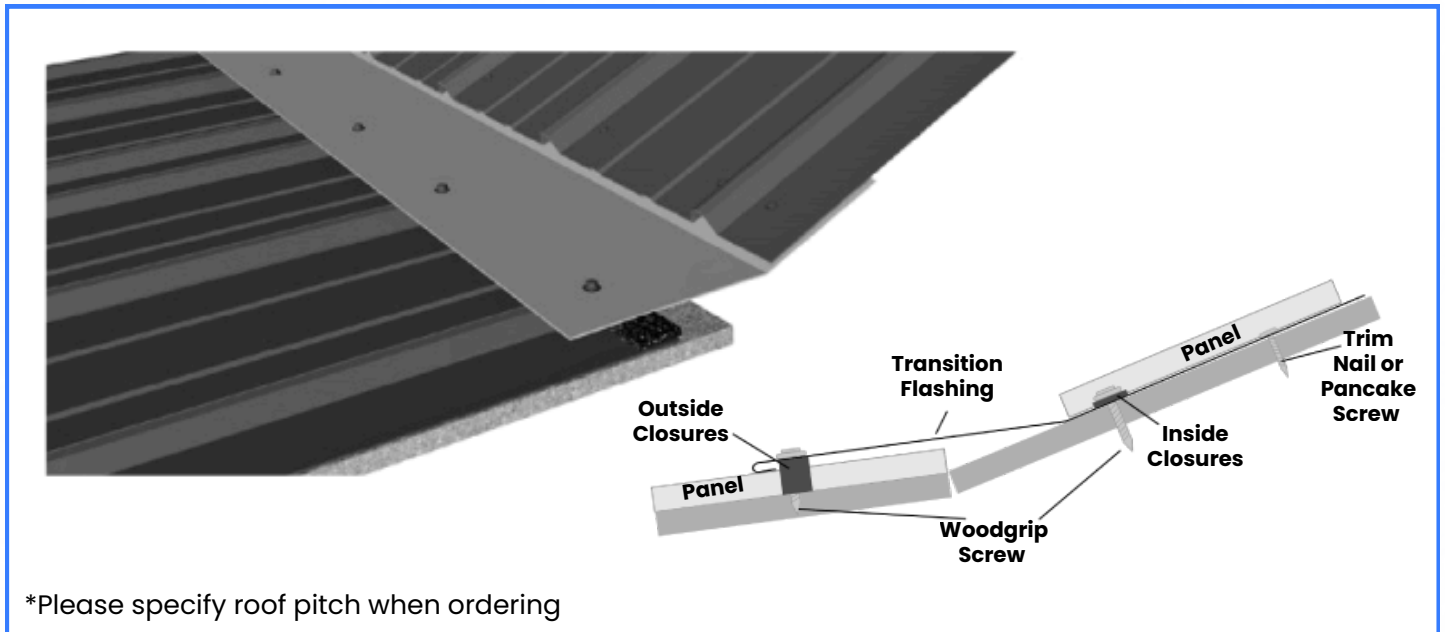
- The 3-4-5 triangle method will work on a larger scale as well. For example, if your roof panels are 16' long then you can multiply the 3-4-5 by 4 so you will be measuring 12-16- 20. Just make sure that you multiply all measurements by the same number. The next step will be making a chalk line going from your "point A" to point C". You will want this line to be as close to the edge of the gable as possible so your first panel will be about 1/8" from the edge of the roof. You will want to measure 9' 6" from your chalk line at the A and C points and make another chalk line. This will help you as you start installing your panels to make sure they are square with your eave. It is a good idea to continue this process for the entire project and on both sides of your roof.

Note:

- If your roof length is a few inches over an even multiple of 3' you will want to take that into consideration when you start installing your panel so that you are not short on the other end of the house. For instance, if your house is 42' 4" wide you can get away with 14 panels. You will just make sure you start your first panel 2" away from the gable end.

TRANSITION FLASHING

Illustration:



Instructions:

- Install bottom roofing panels first.
- After the bottom roofing panels have been installed, set one piece of transition flashing down where the top portion (non-hemmed) of the transition flashing lies on the upper roof.
- Measure 1 ½" from the bottom edge of the transition flashing.
- Repeat step 3 on the opposite end of the roof transition.
- Remove transition flashing and pop a chalk line on the line previously marked indicating where outside closures are going to be placed.
- Install outside closures.
- After the outside closure is installed, install the transition flashing over the outside closures.
- Fasten transition flashing according to the most up-to-date Michigan Roofing Code. For more information, please visit our pros at www.themetalshopllc.com

TRANSITION FLASHING

- ◉ When overlapping transition flashings, flashings should be attached immediately adjacent to a major rib and not in between two major ribs.
- ◉ Once the bottom half of the transition flashing has been installed completely, install the upper roofing panels next over the top part of the transition flashing.
- ◉ Hold roofing panels back two inches from the centerline of the transition flashing.
- ◉ Leave the bottom row of screws uninstalled so inside closures can be installed later.
- ◉ Once the upper roof panels have been installed (except for the bottom row of screws), insert inside closures 1" from the edge of the roofing panel the entire length.
- ◉ Install bottom row of screws into the metal panel catching the inside closures to hold them into place.
- ◉ Bottom row of screws should be placed adjacent to both sides of every major rib.

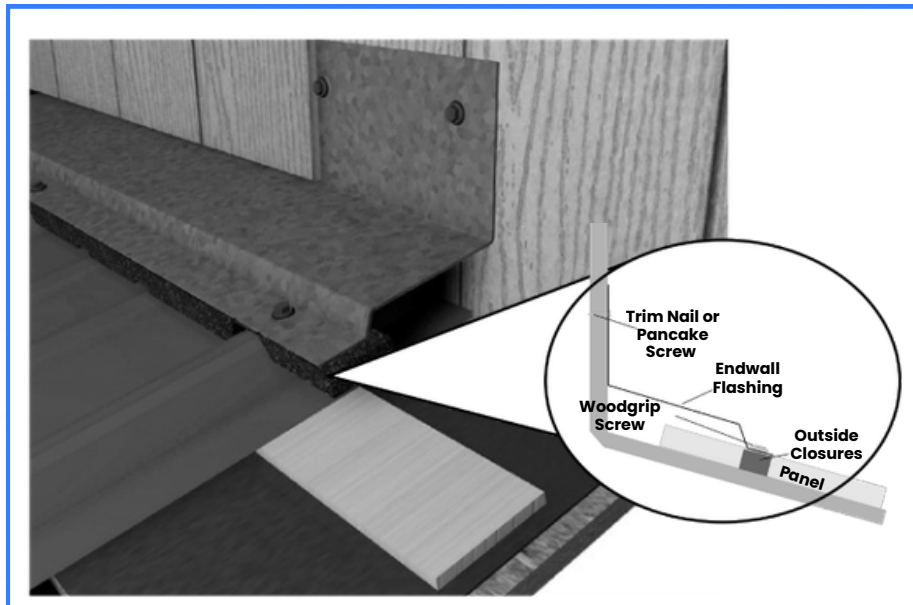
RECOMMENDED ACCESSORIES:

- ◉ Outside Closure, inside Closure (1 Closure = 3' of coverage)



END WALL FLASHING

Illustration:



RECOMMENDED ACCESSORIES:

Outside Closures (1 closure = 3' of coverage)

Caulking (1 tube = 31 linear feet (1/4" bead))

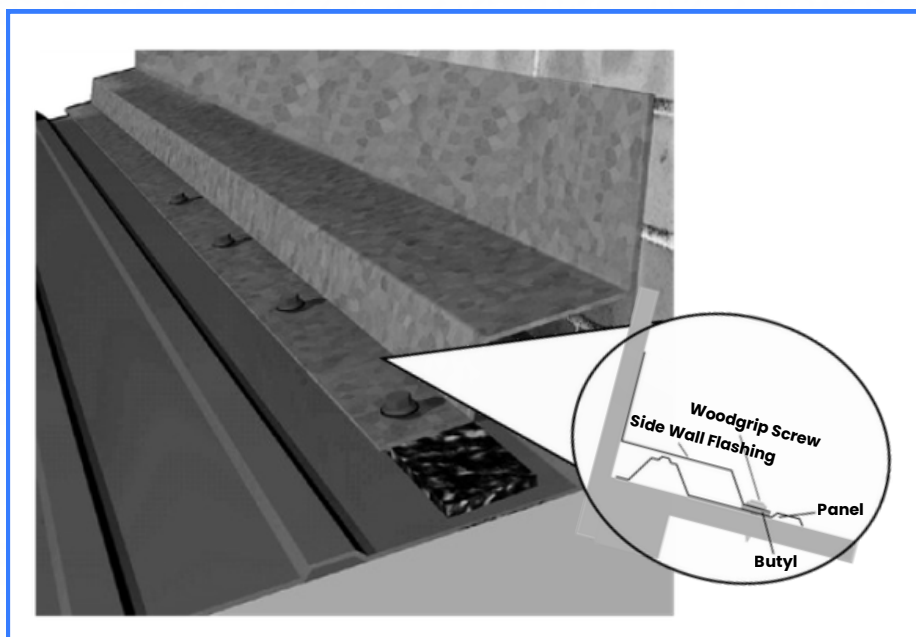
Instructions:

- Install outside closure where the flat of the endwall flashing will be fastened to the roofing panels
- Attach endwall flashing to roofing panels according to the most up-to-date Michigan Roofing Code. For more information please see our pros at www.themetalshopllc.com.
- Overlap endwall flashings a minimum of 3" if more than one endwall flashing is required. Two endwall flashing pieces should be attached immediately above a major rib on the roofing panel and not between ribs.
- It is recommended that the top edge of the endwall flashing be tucked underneath the house siding to provide maximum weather tightness.
- A counter flashing can be added to the top edge of the endwall flashing to allow the endwall flashing to be inserted into the adjacent wall.
- As a last resort when the previous two methods can be performed, a caulk edge can be added to the endwall flashing and then a bead of caulk can be used.

*Purlin placement should be approximately 1" from the wall.

SIDE WALL FLASHING

Illustration:



RECOMMENDED ACCESSORIES:

Butyl (1 roll = 50' of coverage)

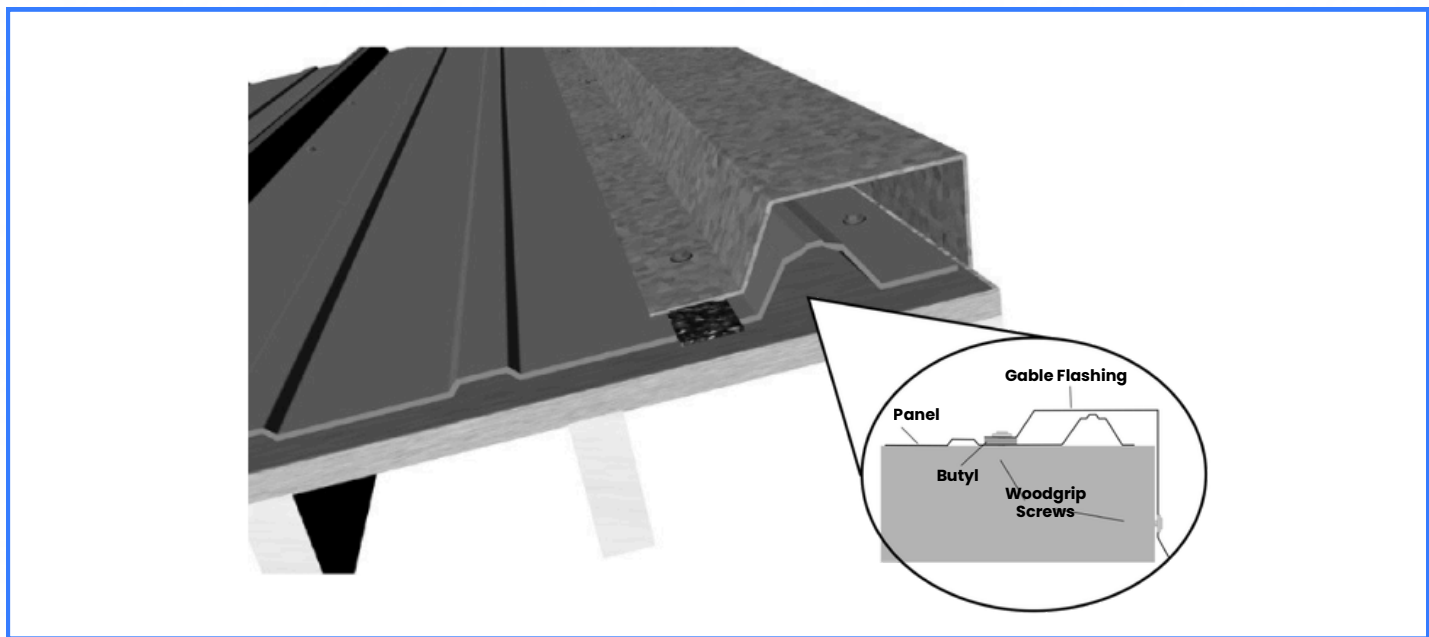
Instructions:

- Install Butyl the entire length along the bottom edge of the sidewall flashing trim where it is on the roofing panels.
- Allow 1" at the bottom of the sidewall flashing to be cut and folded in for a finished look.
- When using sidewall flashing around a dormer, allow 1" at the bottom to be wrapped around the endwall flashing.
- It is recommended that the top leg of the sidewall flashing be installed behind the wall siding. If this cannot be done, then using a countersinking method is preferred.
- Overlap each piece of sidewall flashing at least 3" or in line with the previous row of roofing panel screws to give it a well-finished look.
- Attach sidewall flashing to roofing panels according to the most up-to-date Michigan Building Code. For more information see the pros at www.themetalshopllc.com

*Purlin placement should be approximately 1" from the wall.

GABLE TRIM

Illustration:



Instructions:

- Install Butyl to the bottom of the 1" flat on the gable trim the entire length.
- Starting at the eave, attach gable trim flashing to the roofing panel according to the Michigan Building Code. For more information see our pros at www.themetalshopllc.com
- Overlap gable trim flashing a minimum of 3".
- Allow gable trim to overhang eave by 1" so gable trim can be folded down to give gable trim a finished look.

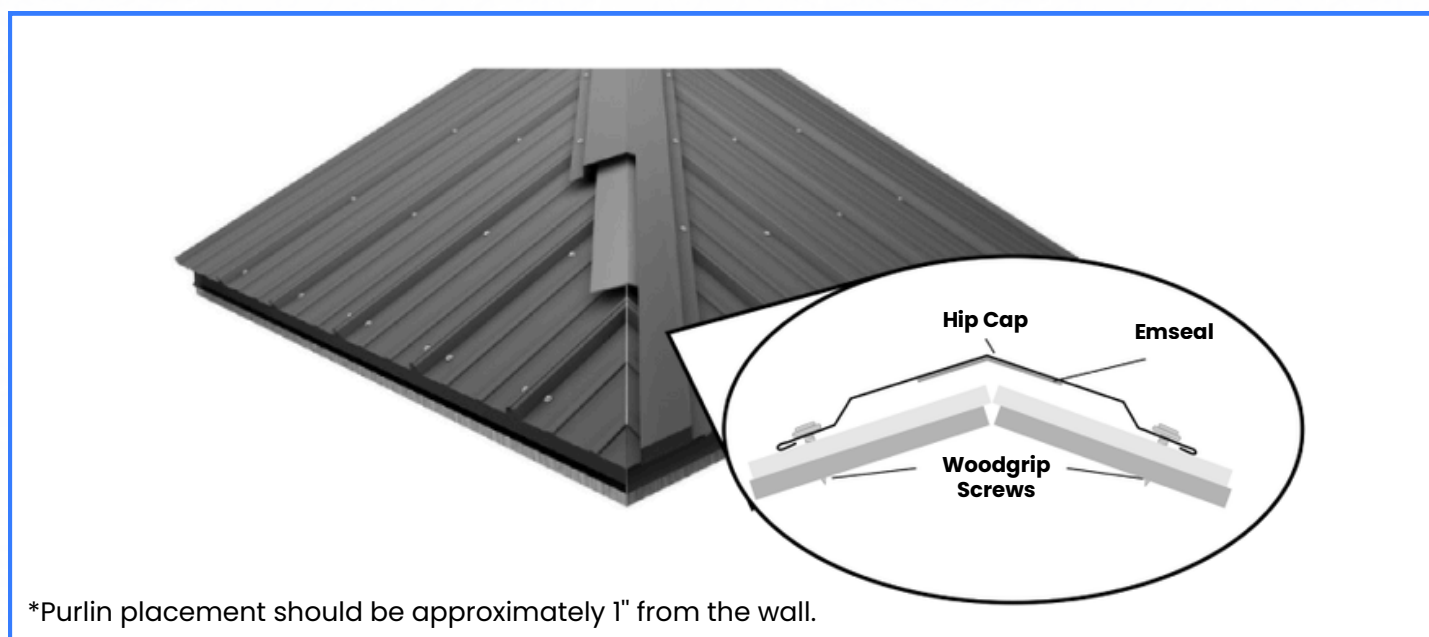
*Purlin placement should be approximately 1" from the gable end running parallel with it.

RECOMMENDED ACCESSORIES:

Tacky Tape (1 roll = 50' of coverage)

HIP CAP

Illustration:

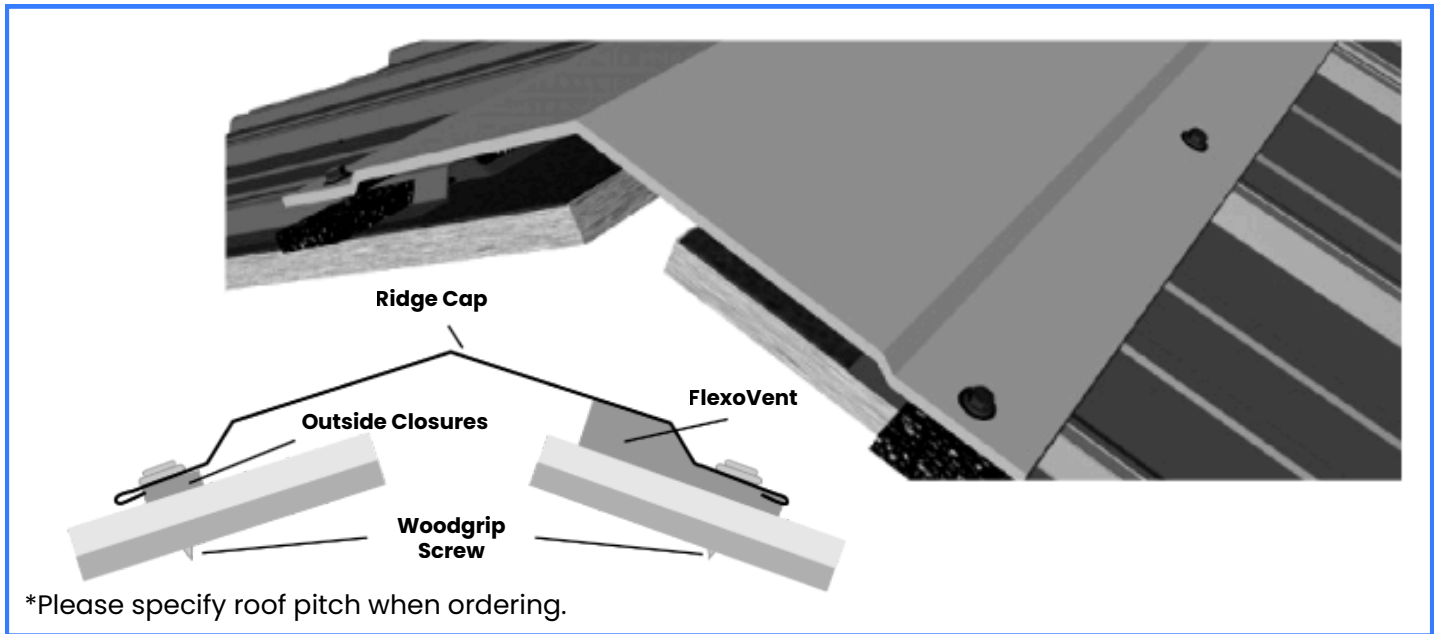


Instructions:

- Cut the metal roofing panels as close as possible to the hip lines of the roof, but not contacting the opposite side's panels. Allow the metal panels to overhang the desired amount at the bottom of the eaves (1-3" recommended).
- Apply emseal starting at the bottom of the hip. Cut the start of the tape to match the overhang of the metal panels. Overlap emseal a minimum of 3". When at the top of the hip overlap the emseal to the next side of the hip and/ or ridge a minimum of 3".
- When installing the hip-cap start at the bottom of the hip. Either pre-bend or allow the hip-cap to overhang the metal panels along the eave lines so they may be folded to give a finished look. Overlap the hip-caps a minimum of 3". When at the top of the hip installing the hip-cap, trim cap to match hip and/ or ridge lines of the adjacent sides of the roof. Then overlapping the previous piece with the next and trimming to fit and lay flat to give a finished look.
- Attach hip-cap flashing with minimum Mini Drill Screws through each rib on both sides of the hip.

RIDGE CAP

Illustration:



Instructions:

- Stop panels 2" from center line of ridge for vented ridge installation.
- Install vented or nonvented or closure the entire length of the ridge 5" from center line of the ridge for a standard ridge cap installation.
- Attach ridge cap according to most up to date Michigan Code.
- Overlap ridge cap pieces a minimum of 3".
- Allow ridge cap to hang over gable ends approximately 6" so they can be folded down to give a ridge a finished look.

*Purlin placement should be approximately 3" from the center of the ridge line on both sides for the small ridge cap.

RECOMMENDED ACCESSORIES:

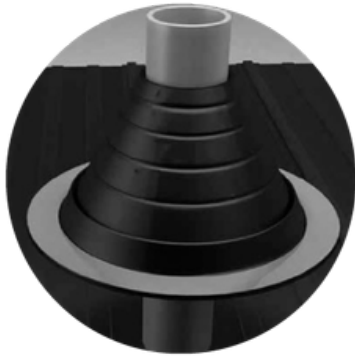
Outside Closures (1 closure = 3' of coverage)

Ridgevent (1 roll) = 20' of coverage)

ROOF BOOT INSTALLATION

Instructions:

➤ Follow the instructions in the chart below for best result.



Step 1

Choose appropriate Roof Boot with opening at least 20% smaller than pipe diameter. If necessary trim opening to 20% smaller than pipe diameter.



Step 2

Slide Roof Boot down over pipe. (A nonpetroleum base lubricant will ease installation.)



Step 3

Apply sealant between base and roof.

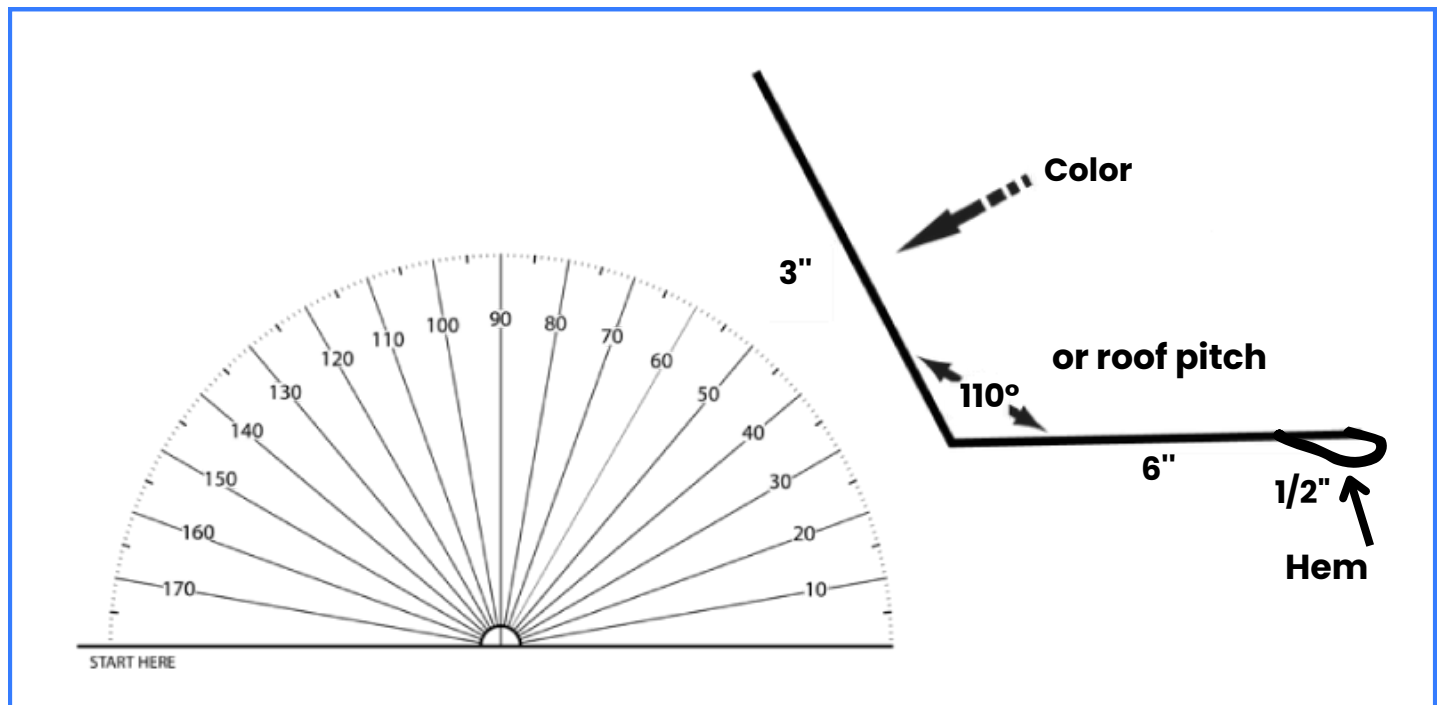


Step 4

Use fasteners to complete sealing. Space screws no more than 2 1/2" apart around the pipe. Apply sealant around the top of Boot

SPECIAL TRIM INSTALLATION

- ◆ The Metal Shop can manufacture special trim designs separate from those designs included in the manual.
- ◆ 1. A drawing of the trim design
- ◆ 2. Clearly marked dimensions of each leg of the drawing.
- ◆ 3. Clearly marked degrees of each angle or roof pitch.
- ◆ 4. Clearly indicate the color side.



TRIM MANUFACTURING SPECIFICATIONS

- ◆ Hem size must be 1/2 or larger.
- ◆ Bends on hemmed legs need to be greater than 1/2" or else the hem obstructs the break.
- ◆ Smashed parts need to be at least 1 1/4".

SPECIALTRIM INSTALLATION

- ◉ When bending angles opposite of one another, like a Z Flashing, the middle part of the Z must be at least 1/2" or larger.
- ◉ When bending two 90-degree bends on the same side, one leg has to be equal to or less than the length of the material between the two bends.
- ◉ Pieces with more than two bends on the same side are difficult to do unless the bends are large enough. For more information, please talk to one of the pros at The Metal Shop.
- ◉ For trim pieces that have to slide over another piece where the inside dimensions are critical, please indicate "CRITICAL" measurement.



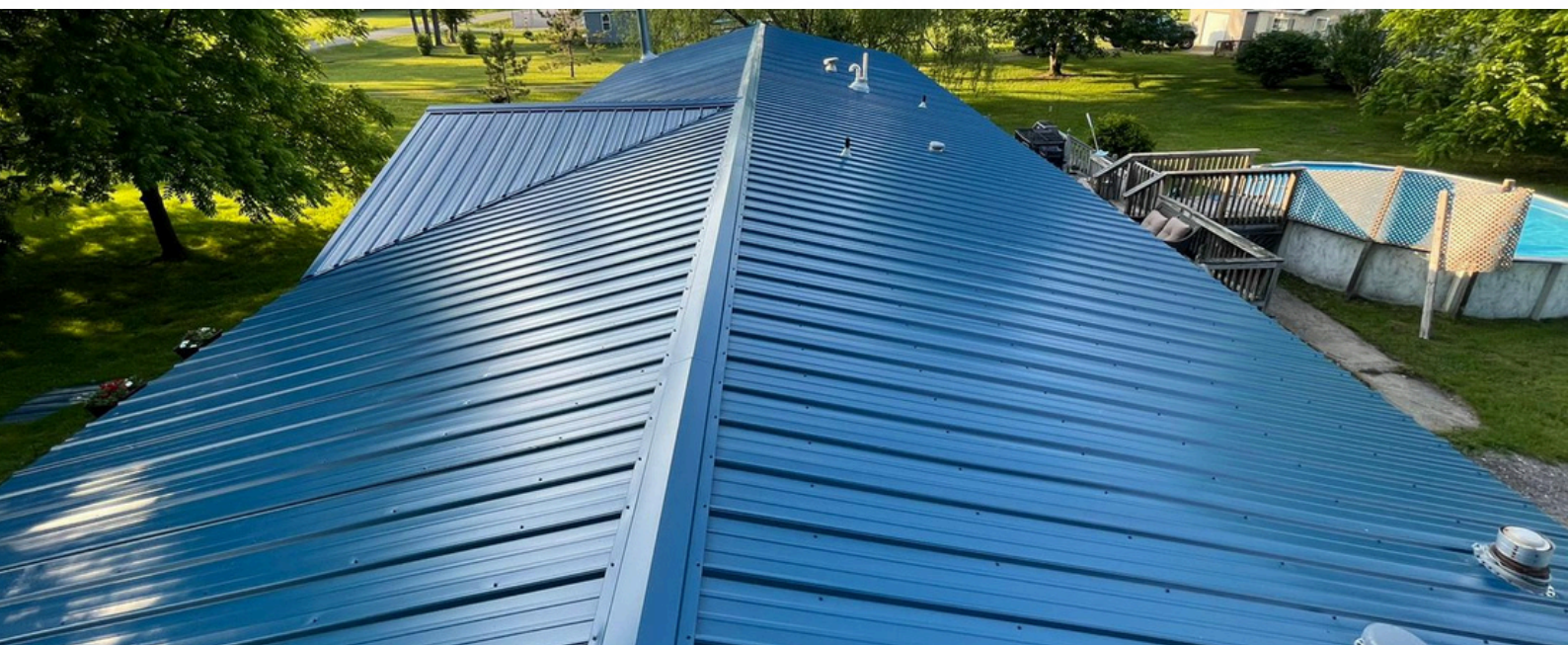
CARE AND MAINTENANCE

- To maintain the original finish of the metal roofing panels, the only regular maintenance necessary is annual washing. Mild solutions of biodegradable cleaner or household ammonia will aid in the removal of most dirt, and the following are recommended levels:
- 1. One cup of Simple Green®, or other non-toxic biodegradable cleaner, which contain less than 0.5% phosphate, dissolved into two gallons of warm water.
- **Note:** The use of detergents containing greater than 5% phosphate is not recommended for use in the general cleaning of building panels. NEVER BLEND CLEANSERS OR DETERGENTS WITH BLEACH.
- 2. One cup of household ammonia dissolved into five gallons of water (room temperature). Working from the bottom to the top of the metal roofing panels, the panels may be washed with either solution. The use of a well-soaked cloth, sponge, brush (with very soft bristles), or a low-pressure spray washer is advised.
- We do not recommend the use of scouring powders or industrial solvents, since these agents may damage the film. Solvent-containing cleaners such as Fantastic®. However, they are very effective and can be used without concern. If mildew or other fungal growth is a problem and cannot be removed as outlined above, household bleach, mixed at a concentration of one cup of bleach to five gallons of water, along with one cup of mild soap (e/g., Ivory) to aid wetting, is recommended.
- Once the metal roofing panels are washed, thorough rinsing with clear water is necessary to eliminate the possibility of residue. Failure to remove all residues from these cleaning steps may damage the film.



POLICIES

- ◉ **RETURN POLICY:** All The Metal Shop trim is manufactured from either our Mill finish Galvalume[®] or TMS exclusive painted metal systems and is returnable as long as it is deemed by our Company's operations Manager as being in a good, clean, and resalable condition, free from scratches, or any other damages. The Metal Shop reserves the right to charge a 15% restocking fee. The same general principle applies also to the return of other accessories such as screws, boots, closures, etc.
- ◉ Trim that is custom-made (different than the stated specification in this manual, including L Flashing and Facia are not returnable and is considered the property of the customer once it has been made, whether paid for or not. This Policy also pertains to metal roofing and siding panels, (which cannot be returned).
- ◉ **PAYMENT:** The Metal Shop accepts cash, checks, Visa, MasterCard, Discover Card, and American Express. Personal checks require the check writers drivers license # and date of birth.
- ◉ Returned checks will be assessed a \$35 dollar return check fee.
- ◉ **DELIVERY POLICY:** Delivery charges apply to all orders where delivery is requested. Please call for details.



POLICIES

- **SALES TAX:** All orders picked up at The Metal Shop, and all orders delivered within the State of Michigan, are subject to State Sales Tax. Tax Exemptions should be verified prior to delivery or customer pick-up. Orders delivered out of state are tax-exempt.
- **WARRANTED PRODUCTS:** Request written warranty for details.
- **INDEMNITY:** All prices and designs are subject to change without notice.
- **DISCLAIMER:** While we have made every attempt at accuracy in this manual, we are not responsible for typo, graphics, printing, or technical errors.
- The success of The Metal Shop has been and will continue to be, because of our valued customers. We strive to be a company where contractors, as well as homeowners, are welcome. We will assist you in calculating the materials needed to complete your project and at a price, you can afford. We understand that our customer's time is important and we make every effort to get you in and out as quickly and efficiently as possible. Quality, price, service, and availability are the mainstays of our business and we don't plan on changing it.



BUY DIRECT

AND SAVE!

Contact Us:



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